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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/407,133

09/27/1999

JOHN A. PINKNEY

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01/02/2004

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EXAMINER

LIU, SHUWANG

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

for on 03/04/04

Office Action Summary

Application No.

09/407,133

Applicant(s)

PINKNEY ET AL.

Examiner

Shuwang Liu

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-9,11 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-9,11 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment and arguments

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It unclear whether "the equalizer" in line 2 refers to the "equalizer" in line 1 of claim 7 or "equalizer" in line 3 of claim 6. Furthermore, It unclear whether "the equalizer" in line 3 refers to the "equalizer" in line 1 of claim 7, in line 2 of claim 7 or "equalizer" in line 3 of claim 6.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gugler et al. (IEEE, 1998) in view of Koslar (US 6,404,338).

As shown in figure 1, Gugler et al. discloses a method and a transceiver of communicating over a wireless indoor telecommunications channel (Introduction, page 381), the method and the transceiver (pages 382-383) comprising:

(1) regarding claim 1:

generating (DPSK modulator) a pulsed signal in which information is carried in the phase of the pulsed signal;

spreading (SAW (chirp) filter) the pulsed signal using a dispersive filter to form a chirp spread spectrum signal;

transmitting (antenna not shown) the chirp spread spectrum signal over a wireless indoor telecommunications channel;

receiving (antenna not shown) the chirp spread spectrum signal at a receiver;

despreading (SAW (chirp) filter) the chirp spread spectrum signal using an inverse dispersive filter that is matched to the dispersive filter to yield a received pulsed signal;

Gugler et al. discloses all of the subject matter as described above except for specifically teaching a low-pass filter and a data extractor (Decision Device in figure 8)) connected to the low pass filter as recited in claims.

Koslar, in the same field of endeavor, teaches a receiver (figure 6) comprising

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a low-pass filter (31) on the output of the demodulator and a data extractor (32 and 33) connected to the low pass filter, the data extractor recovering originally transmitted information from the data symbols and having data as output.

It is necessary to have lowpass filter and data extractor in the receiver in order to recover the transmitted information. It would be desirable to remove extraneous high frequency noise, improve system performance and recovering the information by using a lowpass filter and a data extractor in the receiver. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the low-pass filter and the data extractor as taught by Koslar in the receiver of Gugler et al. in order to allow the receiver to recover the received information without high frequency noise and improve the system performance.

(2) regarding claim 2:

in which generating a pulsed signal comprises:

modulating a data signal onto a carrier using a phase differential modulator

(DQPSK); and

converting the modulated carrier into a pulsed signal (pages 381-383).

(3) regarding claim 5:

in which the dispersive filter is a SAW filter (Sections of Introduction, Chirped Delay Line and Chirp –DQPSK, pages 381-383).

6. Claims 8, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gugler et al. (IEEE, 1998) in view of Huemer et al. (IEEE, 1998).

As shown in figure 1, Gugler et al. discloses a transmitter for communicating over a wireless indoor communications channel, the transmitter (figure 1, pages 382-383) comprising:

(1) regarding claim 8:

a pulsed signal generator (DQPSK and IF pulse);

a dispersive filter (SAW (chirp) filter) being connected to receive a pulsed signal from the pulsed signal generator, and the output the dispersive filter bank being a chirp spread spectrum signal (pages 382-383); and

an RF section (antenna not shown) for upconverting the chirp spread spectrum signal for transmission.

Gugler et al. further discloses the chirp comprising Up- and down-chirp filters (page 382).

Gugler et al. discloses all of the subject matter as described above except for directly teaching the chirp filter shown in figure 1 comprising plural filters, the dispersive filter bank wherein the excitation of each of plural filters corresponds to a different transmitted symbol value as recited in claim.

Huemer et al., in the same field of endeavor, teaches a dispersive filter (figure 2) comprising plural filters (upchirp and downchirp filters), the dispersive filter bank wherein the excitation of each of plural filters corresponds to a different transmitted symbol value (pages 189-190).

It would be desirable to reduce the time distortion and narrowband fading by using the plural dispersive filters (see 189-190). Therefore, it would have been obvious

to one of ordinary skill in the art at the time of the invention to employ the upchirp and down chirp filter as taught by Huemer et al. in the dispersive filter of Gugler et al. in order to reduce the time distortion and narrowband fading with much less complexity than other comparable system.

(2) regarding claim 9:

in which the pulsed signal generator comprises:

a data source (data in);

a differential phase modulator (DQPSK) connected to receive data from the data source; and

an RF pulse generator (antenna not shown) connected to receive a modulated signal from the differential phase modulator.

(3) regarding claim 13:

the excitation of the plural filters is controlled by a signal from a data source (see page 190).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gugler et al. and Huemer et al. as applied to claim 8 above, and further in view of Koslar (US 6,404,338).

As shown in figure 1, Gugler et al. further discloses the receiver comprising:

an RF receiving section (antenna not shown) configured to produce a received chirp spread spectrum signal as output;

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an inverse dispersive filter (SAW (chirp) filter) matched to the dispersive filter and connected to receive the chirp spread spectrum signal from the RF receiving section and generates a received pulsed signal;

a phase demodulator (DQPSK demodulator) connected to the inverse dispersive filter, the phase demodulator generating cophased channel impulse response from the received pulsed signal (see pages 382-383);

Gugler et al and Huemer et al. discloses all of the subject matter as described above except for specifically teaching a low-pass filter and a data extractor (Decision Device in figure 8)) connected to the low pass filter as recited in claims.

Koslar, in the same field of endeavor, teaches a receiver (figure 6) comprising a low-pass filter (31) on the output of the demodulator and a data extractor (32 and 33) connected to the low pass filter, the data extractor recovering originally transmitted information from the data symbols and having data as output.

It is necessary to have lowpass filter and data extractor in the receiver in order to recover the transmitted information. It would be desirable to remove extraneous high frequency noise, improve system performance and recovering the information by using a lowpass filter and a data extractor in the receiver. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the low-pass filter and the data extractor as taught by Koslar in the receiver of Gugler et al. and Huemer et al. in order to allow the receiver to recover the received information without high frequency noise and improve the system performance.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gugler et al. and Koslar as applied to claim 1 above, and further in view of Huemer (IEEE, 1998).

Gugler et al. further discloses the chirp comprising Up- and down-chirp filters (page 382).

Gugler et al. and Koslar discloses all of the subject matter as described above except for directly teaching the chirp filter shown in figure 1 comprising plural filters, the dispersive filter bank wherein the excitation of each of plural filters corresponds to a different transmitted symbol value as recited in claim.

Huemer et al., in the same field of endeavor, teaches a dispersive filter (figure 2) comprising plural filters (upchirp and downchirp filters), the dispersive filter bank wherein the excitation of each of plural filters corresponds to a different transmitted symbol value (pages 189-190).

It would be desirable to reduce the time distortion and narrowband fading by using the plural dispersive filters (see 189-190). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the upchirp and down chirp filter as taught by Huemer et al. in the dispersive filter of Gugler et al. in order to reduce the time distortion and narrowband fading with much less complexity than other comparable system.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gugler et al. and Koslar as applied to claim 1 above, and further in view of Matsui (US 6,049,563).

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Gugler et al. and Koslar discloses all of the subject matter as described above except for teaching the receiver comprising an equalizer as recited in claim.

Matsui, in the same field of endeavor, teaches the receiver (figure 2) comprising an equalizer (111) to the cophased channel response to reduce intersymbol interference caused by the channel multipath (column 3, lines 3-14 and column 5, lines 1-60).

It would be desirable to reduce the multipath distortion and avoid deterioration of the transmission quality (see column 3, lines 3-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the equalizer as taught by Matsui in the receiver of Gugler et al. in order to reduce the multipath distortion and avoid deterioration of the transmission quality.

Allowable Subject Matter

10. Claim 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

Any response to this action should be mailed to:

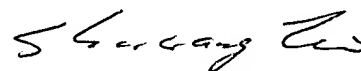
Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Shuwang Liu
Primary Examiner
Art Unit 2634

December 17, 2003